

1. (Currently amended) Representation of at least one area of the earth's surface, ~~characterized in that wherein~~ the area is subdivided into individual sections, and two data values are given for each ~~of these sections~~ individual section, whereby ~~the a first datum (ELV) one of the data values~~ contains an elevation indication of the surface above a predetermined level, and ~~the a second datum (QTY) one of the data values~~ gives a measure of at least one of the accuracy and ~~for~~ reliability of the first ~~datum~~ data value.

2. (Currently amended) ~~Representation~~ A representation according to the preceding claim, ~~characterized in that 1 wherein~~ the first and second data values are first and second digital data values.

3. (Currently amended) ~~Representation~~ A representation according to ~~one of the preceding claims, characterized in that claim 1 wherein~~ the earth's surface is divided into individual sections by a system of grid lines.

4. (Currently amended) ~~Representation~~ A representation according to claim 3, ~~characterized in that wherein~~ the system of grid lines relates to the WGS- 84 ellipsoid.

5. (Currently amended) ~~Representation~~ A representation according to ~~one of the two preceding the previous claim, characterized in that 2 wherein~~ each section corresponds to an area encompassed by two degrees of latitude and two degrees of longitude.

6. (Currently amended) ~~Representation~~ A representation according to ~~one of the three preceding claims, characterized in that claim 3 wherein~~ at least one, ~~several, or all of said sections encompass~~ encompasses an area of 30 arc-seconds x 30 arc-seconds.

7. (Currently amended) ~~Representation~~ A representation according to ~~one of the claims 3 through 5, characterized in that claim 3 wherein~~ at least one, ~~several, or all of said sections encompass~~ encompasses an area of 15 arc-seconds x 15 arc-seconds.

8. (Currently amended) ~~Representation~~ A representation according to ~~one of the preceding claims, characterized in that claim 1 wherein~~ at least one of the first data (ELV) and ~~for the second data (QTY) are indications~~ provides an indication regarding the geographic center of the section (~~cell-centered format~~).

9. (Currently amended) ~~Representation~~ A representation according to ~~one of the preceding claims, characterized in that claim 1 wherein~~ the elevation indication (ELV) of at least one, ~~of several, or of all the sections~~ relates to mean sea level (MSL).

10. (Currently amended) ~~Representation~~ A representation according to ~~one of the preceding claims, characterized in that claim 1 wherein~~ the elevation indication (ELV) of at least one, ~~of several, or of all the sections~~ indicates one of a maximum ~~or terrain~~

elevation within the section and a minimum terrain elevation within the at least one section.

11. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims, characterized in that claim 1 wherein~~ the elevation indication (ELV) of at least one ~~, of several, or of all the~~ sections indicates an average terrain elevation within the at least one section.

12. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims, characterized in that claim 1 wherein~~ the elevation indication (ELV) of at least one ~~, of several, or of all the~~ sections indicates a weighted average terrain elevation within the at least one section.

13. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims, characterized in that claim 1 wherein~~ the elevation indications (ELV) are defined in meters.

14. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims, characterized in that claim 1 wherein~~ the elevation indications of a section are ~~decreased or increased~~ modified by a predetermined value in order to contain ~~indications~~ an indication of the type of terrain in the section.

15. (Currently amended) ~~Representation A representation~~ according to claim 14 ~~, characterized in that the first datum data value of a section contains one of the value -20000 or and~~ the elevation indication (ELV) ~~less minus~~ 20000 if the terrain of the section is one of a sea ~~or and~~ an unknown type of body of water.

16. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims, characterized in that claim 1 wherein~~ the first ~~datum data value~~ contains the elevation indication (ELV) ~~less minus~~ 30000 if the terrain of the section is one of a sea ~~or and~~ a river.

17. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims, characterized in that claim 1 wherein~~ the first ~~datum data value~~ contains a predetermined value (~~No-Data value~~) if no elevation indication can be determined for a section.

18. (Currently amended) ~~Representation A representation~~ according to ~~the preceding claim, characterized in that claim 17 wherein~~ the predetermined value is -9999.

19. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims, characterized in that claim 1 wherein~~ for at least one ~~, for several or for all sections,~~ section the second ~~datum (QTY) data value~~ contains an indication of at least one of the horizontal deviation, horizontal quality, horizontal reliability, horizontal

confidence level, vertical deviation, vertical quality, vertical reliability and /or vertical deviation, quality, reliability, and/or confidence level of the elevation indication of a section.

20. (Currently amended) ~~Representation~~ A representation according to ~~one of the preceding claims, characterized in that claim 1 wherein for at least one ,for several or for all sections, section~~ the second datum (QTY) data value indicates ~~,in several stages or classes; at least one of the reliability or of at least one of the elevation indications and~~ confidence level of at least one of the elevation indications.

21. (Currently amended) ~~Representation~~ A representation according to ~~one of the two preceding claims, characterized in that claim 20 wherein the reliability is determined from at least one of the horizontal relative deviation of the elevation data of a section, the horizontal absolute deviation of the elevation data of a section, the vertical relative deviation of the elevation data of a section and /or relative /sie/ the vertical absolute deviation of the elevation data of a section.~~

22. (Currently amended) ~~Representation~~ A representation according to ~~one of the preceding claims, characterized in that claim 1 wherein the first data value and the second data value are stored in different files.~~

23. (Currently amended) ~~Representation~~ A representation according to ~~one of the preceding claims, characterized in that claim 1 wherein the area of the earth's surface is divided into a number of segments, whereby each segment contains containing several sections, and~~

~~the first data values of the sections and the second data values of the sections, which collectively picture represent a segment of the earth's surface, are stored in one of the following two ways: one segment file each or ; and, together in a segment files /sie/ file.~~

24. (Currently amended) ~~Representation~~ A representation according to ~~the preceding claim, characterized in that claim 23 wherein the first data value (ELV) and the second data value (QTY) are each stored in their own segment files.~~

25. (Currently amended) ~~Representation~~ A representation according to ~~one of the two preceding claims, characterized in that claim 23 wherein at least one ,several, or all segments are segment is~~ bounded by two adjacent degrees of longitude and two adjacent degrees of latitude.

26. (Currently amended) ~~Representation~~ A representation according to ~~one of the two preceding claims, characterized in that claim 25 wherein said at least one ; several or all segments are segment is~~ bounded by ~~the two adjacent~~ degrees of longitude and ~~two adjacent~~ degrees of latitude of the WGS-84 ellipsoid.

27. (Currently amended) ~~Representation A representation~~ according to ~~one of the three preceding claims, characterized in that~~ claim 24 wherein at least several or all segments are bounded from one another by degrees ~~or of~~ latitude and degrees of longitude in the same degree interval.

28. (Currently amended) ~~Representation A representation~~ according to ~~one of the claims claim 23 through 27, characterized in that~~ wherein at least one, several or all segment files ~~each contain~~ file contains the data of ~~the sections~~ a section of an area of the earth's surface 1° x 1° in size.

29. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims claim 23 through 28, characterized in that~~ wherein at least one of the first and second data values of the sections of a segment, each beginning with ~~the a~~ a northwest section, are stored in sequence one after the other in their progression on ~~the a~~ a circle of latitude in ~~the an~~ an easterly direction, ~~whereby in the southerly direction, and~~ and sequential rows adjoining one another are stored one after the other in a southerly direction.

30. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims claim 23 through 29, characterized in that~~ wherein at least one, several or all segment files ~~exhibit~~ file exhibits at least one of a first, ~~general~~ header area in which are contained information concerning at least one of the position ~~and/or~~, extent ~~or and~~ and size of the segment, and ~~for~~ a second, ~~file specific~~ header area in which are contained information concerning at least one of the program used for producing the segment file, the production date, the type of the elevation indication ~~and/or~~ the maximum ~~or~~ elevations occurring in the segment, the minimum elevations occurring in the segment, and information regarding the type of the second ~~datum~~ data value.

31. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims, characterized by~~ claim 1 including at least one file that indicates ~~for each of the segments whether a segment file with elevation data exists for the segment in question~~ each segment.

32. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims, characterized by~~ claim 1 including at least one file that indicates ~~for each of the segments whether no segment file exists for the segment in question, since the segment possesses only sea~~ each segment.

33. (Currently amended) ~~Representation A representation~~ according to ~~one of the preceding claims, characterized by~~ claim 1 including at least one file that indicates ~~for each of the segments whether no segment file exists for the segment in question, since no~~

~~elevation data are available~~ each segment.

34. (Currently amended) ~~Representation~~ A representation according to ~~one of the preceding claims, characterized by~~ claim 1 including at least one of the following:

at least one file that indicates ~~for each of the segments~~ whether a segment file with elevation data exists for ~~the~~ each segment in question, and ~~/or~~

at least one file that indicates whether no segment file exists for ~~the~~ each segment in question, ~~since the segment possesses only sea, and /or~~

~~whether no segment file exists for the segment in question, since no elevation data are available.~~

35. (Currently amended) ~~Method~~ A method for creating a representation according to ~~one of the preceding claims, characterized in that~~ claim 1 including

a) for each ~~individual one or more~~ at least one data sources source containing at least one of ~~elevation a first~~ data and ~~optionally value~~, an accuracy indication and ~~/or a~~ reliability indication for the ~~elevation first~~ data value contained in the data source for at least one part of the area to be represented, at least one of the following steps a1) - c) is executed ~~in the following sequence or any desired sequence:~~

a1) importation of the data from the data source and conversion of the ~~elevation first~~ data value into a predetermined data format, and for each individual ~~elevation datum first data value~~, generation of a second data value that represents at least one of the deviation of the ~~elevation datum first data value~~ from the actual elevation, ~~or and~~ an error value (variance) regarding the ~~elevation datum (import) first data value~~,

a2) translation of at least one of the converted ~~elevation data first data~~ value and ~~/or the second values data value~~ into a predetermined standard with regard to at least one of the horizontal plane (~~position~~) and ~~/or the vertical direction (elevation) (convert)~~,

a3) conversion of the converted and translated ~~elevation first data value~~ and ~~/or second values data value~~ to a predetermined horizontal resolution (~~adjust~~),

a4) check of the ~~elevation first data~~, ~~optionally section by section, values~~ for credibility (~~trust~~), and computation and assignment of a second ~~datum data value~~ for each ~~elevation datum first data value~~ as a measure for at least one of the accuracy and ~~/or~~ reliability of the ~~elevation datum first data value~~,

a5) ~~optionally, and~~ to the extent that the ~~elevation first data values~~ represent average values for an area or a section, determination of a maximum elevation from the average values (~~offset~~);

b) at least one of: for each ~~elevation datum first data value~~, a new

~~elevation datum~~ first data value is created from the ~~elevation data from all of data sources ;~~
and ~~/or , for each second data value~~ a new second datum from the ~~second data from all of the~~
~~data sources (merge)~~ data value is created; and optionally

c) the at least one of the created, new elevation first data value and ~~/or~~
new second data ~~are~~ value is converted into a predetermined data format (~~export~~).

36. (Currently amended) Method A method according to ~~the preceding~~
~~claim , characterized in that~~ 35 wherein the new second data values are created from the
second data values from all data sources by ~~means of~~ Kalman filtering.

37. (Currently amended) Method A method according to ~~one of the two~~
~~preceding claims, characterized in that~~ claim 35 wherein at least one of the data sources that
are to be used, the area of the earth's surface for which the representation is to be created, the
steps that are to be executed and ~~/or~~ the predetermined parameters are determined and are
stored in a process control file (~~process description file~~).

38. (Currently amended) Method A method according to ~~the preceding~~
~~claim , characterized in that~~ 37 wherein predetermined parameters of all of the steps that are
to be executed and the steps that are to be executed are stored in a collective process control
file (~~process description file~~).

39. (Currently amended) Method A method according to ~~one of the~~
~~claims 35 through 38, characterized in that~~ claim 37 wherein the process control file contains
the predetermined horizontal resolution as well as the type (~~maximum, average~~) of the
elevation data of the representation that is to be created.

40. (Currently amended) Method A method according to ~~one of the~~
~~claims 35 through 39, characterized in that~~ claim 35 wherein after each step, the data created
by that step (~~sx_convert/adjust/trust/offset/export~~) are stored.

41. (Currently amended) Method A method according to ~~one of the~~
~~claims claim 35 through 40, characterized in that~~ wherein the subsequent step processes the
data created and stored by the preceding step.

42. (Currently amended) Method A method according to ~~one of the~~
~~claims claim 35 through 41, characterized in that~~ wherein in each step, the predetermined
parameters that are used in that step are checked, the elevation at least one of the first data
value ; and optionally, the second data ~~or accuracy data, value~~ created by the preceding step
or present in the data sources ~~are~~ is imported and ~~optionally checked~~, processed, and the
processed elevation one of the first data value and the second data value ~~are optionally~~
~~checked and finally~~ is stored.

43. (Currently amended) ~~Method A method~~ according to ~~one of the~~ claims claim 35 through 42, characterized in that wherein, for each step, a log is stored of the data processing that took place (~~sx_XXXXX.log~~).

44. (Currently amended) ~~Method A method~~ according to ~~one of the~~ claims claim 35 through 43, characterized in that wherein the data sources exhibits ~~the~~ one of the following: no or one equal indication concerning the accuracy of the ~~elevation first~~ data value for all of the ~~elevation first~~ data values contained therein.

45. (Currently amended) ~~Method A method~~ according to ~~one of the~~ claims claim 35 through 44, characterized in that at least one of before and ~~or~~ after at least one, ~~several or each~~ processing step, ~~for the preceding step~~ at least one of the integrity ~~and/or~~ of the data, the reliability of the data and ~~or~~ the proper execution of the step ~~are~~ is checked.

46. (Currently amended) ~~Method A method~~ according to ~~the preceding~~ claim, characterized in that 45 wherein, for predetermined processing steps, at least one of the integrity ~~and/or~~ of the data, the reliability of the data and ~~or~~ the proper execution of the step ~~are~~ is checked.

47. (Currently amended) ~~Method A method~~ according to ~~one of the~~ claims claim 35 through 46, characterized in that wherein, after at least one of step b) and ~~or~~ after the last step if the last step is not step b), at least one of the integrity ~~and/or~~ of the data, the reliability of the data and ~~or~~ the proper execution of the steps ~~are~~ is checked.

48. (Currently amended) ~~Method A method~~ according to ~~one of the~~ claims claim 45 through 47, characterized in that wherein the results of the check are recorded in a log.

49. (Currently amended) ~~Method A method~~ according to ~~one of the~~ claims claim 35 through 48, characterized in that wherein, if step a2) is performed, then in step a2), the data in the horizontal direction are translated to the WGS-84 system and the data in the vertical direction are translated to mean sea level (~~MSL~~).

50. (Currently amended) ~~Method A method~~ according to ~~one of the~~ claims claim 35 through 49, characterized in that wherein, if step a3) is performed, then in step a3), the data are converted to one of: a horizontal resolution ~~or~~ of a section of an integer multiple of 1 arcsecond; and, an extent of a section of an integer multiple of 1 arcsecond.

51. (Currently amended) ~~Method A method~~ according to ~~the preceding~~ claim, characterized in that 50 wherein, if step a3) is performed, then in step a3), the data are converted to one of: a horizontal resolution of a section of one of 30 arc-seconds and 15 arc-seconds; ~~or~~ and, an extent of a section of one of 30 arc-seconds or and 15 arc-seconds.

52. (Currently amended) ~~Method A method~~ according to ~~one of the claims claim 35 through 51, characterized in that~~ wherein, if step a4) is performed, then in step a4), the accuracy of the ~~elevation first data value~~ is checked individually for each section and each data source to provide a result, and the second ~~datum data value~~ is modified in dependency on this result.

53. (Currently amended) ~~Method A method~~ according to ~~one of the claims claim 35 through 52, characterized in that~~ wherein, if step a5) is performed, then in step a5), a maximum elevation is determined from the average elevation indications.

54. (Currently amended) ~~Method A method~~ according to ~~one of the claims claim 35 through 53, characterized in that~~ wherein a heuristic value (~~offset~~) is added to the average elevation indication.

55. (Currently amended) ~~Method A method~~ for air traffic control of an aircraft, ~~characterized in that~~ wherein
during a flight of an aircraft, at least one of the current elevation, position and ~~/or~~ air route of the aircraft are is determined, the ~~elevation first data value~~ and the second data value of the representation according to ~~one of the claims claim 1 through 34~~ are determined for at least one of the aircraft position and ~~/or~~ the air route, and ~~these the thus-determined first data value and second data value~~ are compared with at least one of the current elevation and the air route of the aircraft.

56. (Currently amended) ~~Device A device~~ for safeguarding an aircraft against contact with the ground, ~~characterized by including~~ a device for the storing of a representation according to ~~one of the claims claim 1 through 34~~, a device for determining at least one of the elevation, the position and ~~/or~~ the air route of the aircraft, a device for exporting at least one of: individual ~~or~~ sections of the representation; and, several sections of the representation, whereby those sections of the representation that represent the earth's surface at the at least one of the ascertained position and ~~/or~~ on the ascertained air route of the aircraft are exported and are compared with the actual elevation and air route of the aircraft.